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19th Congress, 2d Session. [Doc. No. 16.] Ho. of Reps. War Dep't.

ROAD—CUMBERLAND TO DISTRICT OF COLUMBIA.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING A REPORT UPON THE SUBJECT OF

AN EXTENSION OF THE NATIONAL ROAD

FROM

CUMBERLAND TO THE DISTRICT OF COLUMBIA.

December 18, 1826.

Read, and referred to the Committee on Roads and Canals.

WASHINGTON:

PRINTED BY GALES & SEATON.

1826.

DEPARTMENT OE WAR,

December 13th, 1826.

SIR: I have the honor to transmit herewith a report of the Chief Engineer, of this date, accompanied by a copy of the report of Captain McNeill, relative to a reconnoissance made by him of a route for the extension of the national road from its eastern termination at Cumberland, to the District of Columbia.

I have the honor to be, sir,

With great respect,

Your most obedient servant,

JAMES BARBOUR.

The Hon. JOHN W. TAYLOR,

Speaker of the House of Representatives.

ENGINEER DEPARTMENT,

December 18th, 1826.

SIR: In pursuance of your order, and in fulfilment of the object of the resolution on the subject which passed the House of Representatives yesterday, I have the honor to present, herewith, a copy of the Report of Captain McNeill, relative to a reconnoissance made by him, with a view to the selection of a route for a road, to extend from the Eastern extremity of the National road at Cumberland to the District of Columbia.

Respectfully submitted,

ALEX. MACOMB,
Maj. Gen. Ch. Eng.

The Hon. J. BARBOUR,
Secretary of War.

A REPORT

ON A

RECONNOISSANCE OF THE COUNTRY BETWEEN CUMBERLAND AND THE DISTRICT OF COLUMBIA.

"With a view of selecting the most eligible location for a continuance of the National Road from Cumberland, or its vicinity, to tide water in the District of Columbia."

1826.

NEWARK, N. J, *June 25th*, 1826.

SIR: Your instructions, addressed to me at Washington, on the 25th of April last, required me to make "a reconnoissance of the country between the tide waters of the Potomac within the District of Columbia, and the Cumberland road with a view to selecting the most eligible location for a continuance of the Cumberland road to the tide waters within the District of Columbia.

I chose Lieutenant Dillahunty one of my assistants, to accompany me, and as soon as practicable we left Washington to fulfil the object contemplated by those instructions.

The various routes suggested "by the different interests and opinions of persons living in the vicinity of the supposed direction of the road," and to which my attention was directed by the documents accompanying my instructions, having been examined, I proceed now to an enumeration of the respective advantages, natural and adventitious, that would seem to be possessed by either. Referring to the accompanying map which I have had compiled by Lieutenant Fessenden, from the recent surveys that were made by the citizens of Frederick, Jefferson, and Berkley Counties, Virginia, from the delineation of the topography thereon, sufficiently accurate for present purposes, it will be observed, that, from Cumberland to the "Barrier Mountain,"*

* The "Barrier Mountain" designates the ridge known in Frederick as the "Little North Mountain," and in Berkley as the North Mountain; but as there is still another ridge in Frederick, called the North Mountain, to avoid the confusion that would ensue from so barren a nomenclature, I have given the name of "Barrier Mountain" to the whole of that ridge which forms the western boundary of the Shenandoah valley.

which forms the western boundary of the Shenandoah valley, a succession and alternation of ridges and narrow valleys, running parallel, or nearly so, to each other, occupy the whole distance.

In the location of a road, therefore, through that section, it would be impossible to keep in the plane of the arc of shortest distance; and from the character of the ridges generally, where they would be intersected in the straight course from Cumberland to Georgetown, (which I shall assume as the eastern termination of the contemplated road,) we may safely conclude that a properly graduated road in that direction would have little or no advantage, in point of *distance* even, over other routes, which, by deflecting, would pass the mountains in their greatest depressions.

But postponing for the present an enumeration of the particular obstacles to a direct route, (which may be made more apparent as we proceed,) the following are the routes by which it has been proposed to continue the national road to tide water.

1*st Route.*—From Cumberland to Martinsburg; whence it would be directed, either through Shepherdstown, and by the mouth of the Monocacy, to Georgetown, or by Harper's Ferry to Georgetown.

2*d Route.*—From Cumberland, by Old Town and Tetus's Gap, in the Sidling Mountain, to the Bloomery Gap, in the Great Cacapehon Mountain; thence, by either Winchester, Guadaloupe, or Gerardstown, to Georgetown.

3*d Route.*—From *Carter's Tavern*, on the national road, 5 miles west of Cumberland, by Cressap Town, Frankfort, and Springfield, to intersect the second route at the Bloomery.

4*th Route.*—From Carter's Tavern to Springfield, and thence, by Heiskill's Tavern, in a Gap of the Conolloway Mountain, through *Winchester* to *Georgetown*.

But as, on arriving by either route in the valley of the Shenandoah, there will be comparatively but little difficulty in determining the proper location for the continuance of the road to Georgetown, the respective merits of the different routes will be more readily seen by comparing first those sections which lie west of Martinsburg, Gerardstown, Guadaloupe, and Winchester.

1*st Route from Cumberland to Martinsburg.*—The topography of the country opposes the location of a road, in the straight direction from Cumberland to Martinsburg, almost every obstacle that we should encounter by endeavoring to keep in the plane of the arc of shortest distance from Cumberland to Georgetown. We should, indeed, cross those very mountains, whose elevations constitute the objection to a road in that direction, where, to say the least of them, they are as high as elsewhere.

It would be fallacious, therefore, to estimate the length of this route at any thing near that of a straight line, when, to obtain a proper graduation, we should continually be constrained to deflect materially from that direction.

In the first place, to avoid the ridges on the Maryland side, it will be necessary to keep at but a short distance from the river as far as

Old Town; and this, although it seems somewhat circuitous, will not I think be more so than the course we should be obliged to pursue to *cross* those ridges.

The actual distance from Cumberland to Old Town is about 11 miles; the distance by the present road is 15 miles.

The probable distance by a graduated road may be assumed at about 13 miles.

From Old Town, in a straight course, to Martinsburg, the distance is 34 miles; and until we cross the Potomac, about 7½ miles below Old Town, the face of the country is favorable to the trace of a road at an easy graduation.

The probable length of a graduated road from Old Town to Colonel Greenwell's, where it is that we cross the Potomac, would not exceed 8 miles, although the length of the present road is 10 miles.

But, from Colonel Greenwell's to Martinsburg, the difficulties multiply, and are not, on this route, to be avoided: for Sidling Mountain, the Great Cacapehon, Sleepy Creek Mountain, and Third Hill, must be all met where they are most formidable. And, here, I will take the opportunity to recur to the direct route from *Cumberland* to *Georgetown*, as *it* crosses these mountains under similar disadvantages with the route under consideration, which will be apparent from the character about to be given them.

Sidling Mountain is a high continuous ridge from the Potomac River to Titus' Gap, with occasional slight depressions only, but with none deserving the name of a Gap.

The *Great Cacapehon* Mountain towers, in all its wonted majesty, from within a short distance of the Potomac to the *Blooming Gap*, and from the frequent occurrence of huge coves, scooped, as it were, out of the side of the mountain, the operation of graduating a road across it would be extremely difficult: for, the slope from the sides of the projecting spurs which bound these coves, and along which the road must ascend, (for the spurs are too narrow to wind across their crests,) is always very steep, and, sometimes, almost perpendicular for upwards of an hundred feet.

An idea can be conveyed of the height of this mountain, by the mention of the fact, that we were ascending it at an average slope of 16° for 2 miles, and descending, on the Eastern side, first for ¾ of a mile at 20°, and then for a like distance at from 8° to 10°.

From the Eastern base of the Capon Mountain the Sleepy Creek Mountain next opposes us, for we pass the Bath Ridge at Rock Run Gap, and over other small ridges where they are inconsiderable.

The Sleepy Creek Mountain, however, is high and steep; as is also the Third *Hill*, (not less a mountain on that account,) from which it is separated only by a very narrow valley. These, unlike the others, rise some distance from the Potomac, and, although intersected in their highest points by a straight line from Cumberland to Georgetown, the one ceases and the other sinks into insignificance, before they extend far enough South to intercept any route from the *Blooming Gap*, to either Winchester, Gaudaloupe, or Gerrardstown.

These four mountains then, viz: the Sidling, Cacapehon, Sleepy Creek, and Third Hill, are common to a direct route from Cumberland to either Georgetown or to Martinsburg, and not intersected by any route through the Blooming Gap: which remark applies also to the *Conolloway* Mountain, as *it* is severed to its base both at the Bloomery, and at Heiskill's tavern, by which the fourth route passes; and, although not any serious impediment on the Martinsburg route, it would be such to a direct route to Georgetown: for, between Van Arsedale's Mill, (near which it is intersected by the Martinsburg route,) and the Bloomery Gap, it vies in elevation with the Great Cacapehon, and surpasses it in the steepness with which it descends on either side: indeed, the sides of Conolloway Mountain are so steep and rocky, that they resemble, at some little distance, immense *walls*, and seem almost the work of art rather than that of nature.

But, we will suppose ourselves again at the Eastern base of Third Hill, and yet we shall have between us and Martinsburg, Elk Ridge and the Barrier Mountain; the first, Elk Ridge, belongs to a class of about the same grade as the Timber Ridges and Shockey's ridge, which lie between the Bath Ridge and Sleepy Creek Mountain, and which, in speaking of that section, I have termed inconsiderable; and, inasmuch as they sustain nearly the same character on all the routes, it was not material to take them into account. A similar mode of reasoning, however, claims for Elk Ridge that particularity, which, were it continuous, might be dispensed with: for, it is only met with as a distinct ridge on the Martinsburg route. It is therefore mentioned, because, inconsiderable as it is by comparison, it would necessitate a deflection from the straight course to obtain a proper graduation: to what extent I cannot say precisely, but we, in crossing it, travelled one mile at a slope of 5°.

Passing Elk Ridge, however, as we may, the next is emphatically a *barrier* to a direct approach to Martinsburg: for, on either side, the slope of that mountain is great, and where it would be intersected by a straight line from Old Town, it attains the height of 854 feet above its base.*

We crossed it, however, in a depression nearest to that point, known as Park's Gap, and there the Barrier Mountain was so elevated for that 2¼ miles (ascending and descending) the road sloped at 5°.

From Parks' Gap to Mills' Gap, which is in the direct course from Cumberland to Georgetown, the Barrier Mountain is always high and steep; but, at Mills' Gap, it presents a considerable depression, and a far more favorable pass than any North of it, or rather, until it terminates near the Potomac River. South of Mills' Gap it again rises to its former elevation, but it soon subsides; and, at the *Green Spring* Gap, on the route from the Bloomery to Gaudaloupe, we find it severed to its base; nor does it regain its former importance, or obstruct at all the routes to Winchester.

* This was found to be the elevation of that part of the Barrier Mountain, by actual measurement made some years ago, when a road was contemplated from Martinsburg to Old Town.

Having now described with sufficient minuteness the particular features of the Martinsburg route, I shall endeavor to deduce from my knowledge of the country, the *probable* length of a road from Cumberland to Martinsburg, assuming 4° as the maximum slope that would be admissible in its graduation.*

The road pursued by us from Cumberland to Martinsburg was that through Oldtown to Colonel Greenwell's, whence, whenever it was practicable, we traversed the direct line, and, when not practicable, the paths and roads nearest to it.

Distance by the route travelled by us:

From Cumberland to Oldtown - - - - - -	15	miles.
Thence to Colonel Greenwell's, where the direct line from Oldtown to Martinsburg crosses the Potomac -	10	
Thence to Martinsburg - - - - - - -	38	
Total -	63	miles.

Distance by a straight course from Cumberland to Oldtown - - - - - - - - -	11	miles.
Thence to Greenwell's - - - - - - -	7½	
Thence to Martinsburg - - - - - - -	26½	
Total -	45	miles.

Graduation by the route travelled from Cumberland to Oldtown.

6¼ miles at a slope of	1° and under	1°
2½	1°	2°
5½	2°	3°
¾	6°	7°
15 miles.		

The length of this section I think may be reduced to 13 miles, and the graduation to

6½ miles at a slope of	1° and under	2°
6½	2°	3°
13 miles.		

* However preferable it may be to adopt 3° as the maximum slope in the ultimate graduation of the road, yet, as the present road through Maryland crosses the Mountains on the route from Cumberland to Georgetown, at as a great a slope as 4°, that we may the more easily compare the lengths of all the routes proposed for continuing the National Road through Virginia, with that by the present road through *Maryland*, I have assumed the same slope for the former as now obtains on the latter.

The distance from Cumberland to Georgetown, computed on the present road through Hagerstown and Fredericktown, is 133 miles.

From Oldtown to Colonel Greenwell's.

3½	miles at a slope of 1°	and under 1°
3½	1°	2°
½	2°	3°
½	3°	4°
½	4°	5°
1½	6°	7°
10	miles.	

The length of this section may be reduced to about 8 miles, and the graduation to

4	miles at a slope of 1°	and under 2°
4	2°	3°
8	miles.	

From Greenwell's to Martinsburg.

7	miles at a slope of 1°	and under 2°
11½	2°	3°
4	3°	4°
2	4°	5°
4½	5°	6°
2½	7°	8°
4	8°	10°
2	16°	20°
1	20°	25°
38	miles.	

It is of course impossible to say with any certainty, without an actual survey, how great an allowance should be made *in distance* to reduce the graduation of this section to 4°; but in attempting to determine the probable length of it by the length and graduation of the present road, and the distance in a straight line, I think I may venture to assert confidently, that, from the nature of the country between Colonel Greenwell's and Martinsburg, devious as was the course of the route pursued by us, a proper graduation cannot at any rate be obtained in a less distance, viz: I would add to the actual distance of 26½ miles from Colonel Greenwell's to Martinsburg, 11½ miles as the *least* increase that can be expected to reduce the graduation to 4°. The probable length of this section being assumed at 38 miles, its graduation would be something thus:

7	miles at a slope of 1°	and under 2°
11	3°	4°
20	4°	
38	miles.	

As it regards *materials*, for a durable and solid construction, it is scarcely necessary to mention that they in general abound; and if sometimes they are not seen for several miles, there is little question they will always be found in the vicinity. Sand stone principally abounds, but sometimes lime stone was observed; although the latter is scarce West of the Barrier mountain.

The soil is composed of sand and clay, frequently intermixed with a slaty sand stone, and producing a growth of oak and pine; the bottom lands bordering on the Potomac and its tributaries are fertile, but the valleys are so narrow, and to which cultivation is confined, that we see but little good land from the Potomac to the Shenandoah valley. The population, therefore, in the immediate vicinity of this route, is limited to but a few families.

For the length of bridges and causeways, reference may be had to the following table, into which are condensed the summary results in relation to the Martinsburg route:

	GRADUATION.										Length of bridges.	Length of causeways
Distance from Cumberland to Martinsburg.	1° 1°	1° 2°	2 3	3 4	4 5	5 6	6 7	7 8	8 10	16 20	20° 25°	
	m.											
63 miles by the road.	9¾	13	17¼	4½	2½	4½	2¼	2¼	4	2	1	721 yds.	608 yards.
59 miles probable.	•		17½	10½	11	20						

Gerrardstown, Gaudaloupe, and Winchester Routes.

For all these routes it has been remarked that, to the *Bloomery* Gap, the National Road might be continued, either from *Cumberland*, through Old Town, or from a point five miles West of Cumberland, through Cressaptown, Frankfort, and Springfield.

By the Old Town route, we should, as far as Old Town, pursue the course indicated for a route to Martinsburg, whence we should proceed direct to the Forks of the Potomac river, and cross into Virginia two miles from Old Town.

The Eastern South Branch Mountain is then immediately in front of us, and must be encountered where, from its character, it is significantly called the "Break Neck." It every where presents a most unfavorable aspect on its Western side, but here, like most of the mountains, as they approach the Potomac, it is rather more elevated than we find it further South, where either of the other routes intersect it.

The difficulties to be expected at this point were forcibly impressed upon me by their frequent mention by many, and my examinations, in consequence, were more minute than usual.

The present road ascends, by means of a spur, to, perhaps, half the elevation of the mountain, whence, along the side of the mountain,

it continues to the top, for about half a mile, at a slope of from nine to ten degrees. It does not, however, reach the summit in its greatest depression, which is further South, and more in the direction that the road ultimately pursues; and, were it to ascend as it now does, on the *crest* of the spur, and then oblique to this *depression*, I think such a change in the location would reduce the slope of that part of the road along the side of the mountain, from nine to ten degrees, to about the proper graduation. If it did not, however, a proper graduation would be obtained by ascending the spur itself, along its side; the objection to which is, that the ground is very steep and rocky. But, as it is practicable, the objection relates to the expense solely.

At all events, it would be *practicable* to ascend, with a slope of four degrees, by crossing the Potomac *just above* the forks, and pursuing a course across the "Horse Shoe," so as to strike the mountain where it is much less steep than where the present road is located, whence we could wind at pleasure to the depression spoken of.

By either mode suggested, we could ascend this mountain at a proper graduation, without much increasing the distance beyond what it now is by the existing road.*

On arriving at the top of the East South Branch mountain, we soon commenced a descent towards the Little Capon river, and, although, on each side of that stream, there are ridges, (called the East and West Little Capon Mountains) neither obstruct the course of the route we are considering, for they are both broken by small streams tributary to the Little Capon River.

Through the valleys in which they flow, we arrive, on a very gradual slope, first at the Little Capon River, and then at the base of the Spring Gap Mountain. Such is the location of the present road, and although it be somewhat circuitous, as I am not aware it can be shortened with advantage, in estimating the *probable distance* to the Spring Gap Mountain, I shall assume it as the same with that travelled by us.

The *Spring Gap Mountain* is the first ridge intersected by the Martinsburg route, after crossing the Potomac, but it was there so inconsiderable as to be scarcely distinguishable as a separate ridge, and was not mentioned. It however very soon attains a great elevation, and throughout its subsequent course it presents but that single Gap, by means of which the present road crosses it; and even in that depression it may vie in height with the South Branch Mountain. It is not however nigh so steep on either side, and, by means of the spurs which project from it in a favorable direction, it may I think be passed without much difficulty, and the proper graduation may again be obtained without augmenting the probable distance beyond that by the present road.

From its Western base, one mile beyond the Little Capon River to Titus' Gap in the Sidling Mountain, the distance by the present road

* I have, perhaps, been unnecessarily minute, but as the ascent to this mountain has been pronounced even impracticable at 4°, by a gentleman experienced, I was told, in the location of roads, being of different opinion, I felt it incumbent on me to detail my reasons.

is four miles; and by giving the graduation of that part of the road, I think it will be apparent that the probable distance will not exceed four miles.

First, we ascended half a mile at a slope of 6° and less, and then 7°, and next three quarters of a mile at a slope of 2°; this was by means of a spur which brought us within three quarters of a mile of the top of Spring Gap Mountain, and along the side of which spur we might as well ascend gradually, as we now do steeply, by reaching its crest in the first half mile.

The remaining three quarters of a mile (to the top) slopes now at but 4° and less than 5°, and on its Eastern side the slope for half the distance to Titus' is 4° and less than 5°, and half at 2°.

Titus' Gap is an obvious point in any route to the Bloomery Gap: for it is there that the Sidling Mountain is completely severed; it is distant by the present road eight and a half miles from Sherrard's Store in the Bloomery Gap, and in that distance we pass the Sidling, Conolloway, and Great Cacapehon Mountains, (the first and last of which are so formidable on the Martinsburg route) without crossing over either.

This last section, from Titus' to Sherrard's, will admit a deviation from the location of the present road, by which the distance will be diminished, and the graduation reduced: for, in relation to distance, the present road is unnecessarily crooked, as must be obvious to any one who has seen it, *between* the forks of Capon, and from Less's Tavern to Sherrard's Store; and, in relation to graduation, the present road crosses several steep spurs of the Sidling Mountain, from Titus' to the Forks of Capon, although it might have been continued equally direct in a valley sloping at but from 1° to 2°.

Such is the general character of the section between Cumberland and Sherrard's Store. I proceed next to enumerate the distances and the graduation by the present road, and to estimate the *probable* length and graduation of this section on the supposition of those modifications, that I imagine can be effected in the manner already explained.

Distances by the Road travelled.

From Cumberland to Old Town, - -	15	miles.
Thence to the Forks of the Potomac, - -	2¼	do
Titus' Gap in the Sidling Mountain,	11¾	do
Sherrard's Store, - -	8¼	do
Total,	37¼	miles.

Graduation of the present Road.

From Cumberland to Old Town it is the same as on the Martinsburg route.

From Old Town to the Forks of the Potomac, two and a quarter miles, at a slope of 1°, and under 2°. This may be reduced to two miles without altering the slope.

Thence to Titus' Gap—

2	miles, at a slope of	1°, and under	1°
3½	do	1	2
1¼	do	2	3
1½	do	3	4
1¾	do	4	5
½	do	5	6
¾	do	6	7
¾	do	7	8
½	do	9	10
11¾			

From the Forks of the Potomac to Titus', without increasing the distance, the graduation may be thus modified—

1	mile, at a slope of	1°, and under	1°.
3¾	do	1	2
7	do	4	
11¾			

From Titus' to Sherrard's Store—

5½	miles, at a slope of	1°, and under	1°
1	do	1	2
1	do	2	3
¾	do	5	6

8¼ miles, being one and a quarter miles more than the probable distance, which will admit the following graduation :

4	miles, at a slope of	1°, and under	1°
3	do	1	2
7	miles probable distance from Titus' to Sherrard's.		

The summary results in relation to the section between Cumberland and Sherrard's Store, are now presented in the following table:

Distance from Cumberland to Sherrard's Store.	GRADUATION.									Total length of Bridges.	Total length of Causeways.
	1° & under 1°	1° 2°	2° 3°	3° 4°	4° 5°	5° 6°	6° 7°	7° 8°	9° 10		
	M.										
By the present road 37¼ miles, - -	13¾	9¼	7¾	1½	1¾	1¼	1¼	¼	½	420	285
Probable distance 33¾ miles, - -	5	15¼	6½		4° 7						

Section from Carter's, through Cressap Town, to Sherrard's Store.

The first advantage presented by this route is, that Wills' Mountain is not so elevated at Carter's, from which we immediately begin

to descend in the direction of Cressaptown, as it is between Carter's and Cumberland; and although the road be already made to Cumberland, our object shall be to determine, as near as may be, from the data in our possession, if its other advantages may not outweigh a consideration relating merely to expense, and to the accommodation of the town of Cumberland.

First, then, from Carter's to Cressaptown, it is three and a quarter miles, with an average slope of 2°, and less than 3°, whence to where the existing road crosses the Potomac river, it is about two miles, over a somewhat hilly country, but susceptible of an easy graduation. The Potomac washes the Western base of the Knobly Mountain, a name indicating its character, for it is remarkable for the regular succession of its knobs, which readily distinguish it from the other ridges. To one of its depressions, where, perhaps, it is not more than 150 feet high, the present road is directed, and although we arrive at its summit, half a mile from the Potomac, by rather an abrupt ascent, I think the graduation may be reduced to 4°, without augmenting the distance.

From the top of Knobly Mountain to the town of Springfield, nature would seem to have pointed out the proper course for a road: for, although mountains intervene, the first, Patterson's Cr. Ridge, is broken completely; and the second, Middle Ridge, is so depressed, where we should wish to cross it, that neither would merit notice, were not each almost impassable at any other point. The distance, by the present road, then, will again be taken for the probable distance.

From Springfield to Sherrard's Store, we are necessitated, from the position of the Gaps, which, as a straight line, would bring us in contact with formidable mountains, must control the direction of this part of the route, to pursue a course much more circuitous than heretofore. To compensate for this, however, we entirely avoid every mountain but that on the Eastern side of the South branch of Potomac: for, although the Western South Branch Mountain be between it and Springfield, and Spring Gap Mountain, between it and Titus', (whence to Sherrard's this route is common with that from Old Town) we pass the first by a defile characterizing a spot at which it is broken to its base, and indicating the first point Southward of the Potomac River at which that mountain is neither high nor steep; and the other, Spring Gap Mountain, by going around its Southern end a few miles South of Titus'.

The Eastern South Branch Mountain, I have said before, is every where a serious obstacle. On this route, however, it may be overcome, I think, with as little, or perhaps with less difficulty, than at "Break Neck." The present road ascends at a slope of 5° and 6° for two miles before it reaches the summit, and then descends at the same rate, for three quarters of a mile, on its Western side; but it, like the Break Neck Road, does not cross the mountain in its greatest depression, (which is the more surprising as it is but a few hundred yards farther North,) and I think that, were it to do so, a proper graduation would not much increase the distance, say beyond an half a mile. I shall, therefore, in estimating the probable

distance, add but that much to that part of the route across the mountain, to reduce its graduation to 4°.

The remaining part of the road to Titus' was on a slope of but from 1° to 2°; a fact very illustrative of one great advantage of the route, when we recollect the character of the Spring Gap mountain on the Old Town route.

But here, as the two routes unite, of course what has been said of the section between Titus' and Sherrard's, applies to one as well as the other. I shall, therefore, proceed to a statement of the length and graduation of the present road from Carter's to Sherrard's, to deduce, with what I have said, the *probable* length for a proper graduation.

Length of the present road from Carter's.	Graduation.						Length of Bridges.	Length of Causeways
	1° & under 1°	1° 2°	2° 3°	3° 4°	5° 6°	7° 9°		
Through Cressaptown and Frankfort 17¼ m. to Springfield.	miles 2¼	5½	6	3¼	⅛	⅛	350 yds.	400 yds.

The probable distance would remain the same by modifying the trace of the road to this graduation; 2¼ m. at a slope of 1° and under 1°; 5½ m. at 1° and under 2°; 6 m. at 2° and under 3°; 3⅛ m. at 3° and less than 4°.

From Springfield to Titus'.

Length of the present road.	Graduation.			Bridges.	Causeways
	1° & under 1°	1° - 2°	5° - 6°		
15 miles.	6¼	5½	3¼		

15½ probable distance with this graduation, 6¼ m. at 1° and under 1°; 6 m. at 1° and under 2°; 3¼ m. at 4°.

To facilitate a comparison of the routes from Cumberland and Carter's to Sherrard's Store, the summary results in relation to either are now included in one table.

Probable distance to Sherrard's.	Graduation.				Length of Bridges.	Length of Causeways.
	1° & under 1°	1° - 2°	2° - 3°	4		
39¾ from Carter's,	12½ m.	14½	6	6¾	610 yds.	520
33¾ m. from Cumberland,	5	15¼	6½	7	420	285

The *Cumberland* route then, excluding its adventitious superiority, from going through a populous and thriving town, would seem to possess natural advantages, which, upon the broad principle of extending the national road by the *shortest and most practicable* route, should obtain its preference over the Springfield route: for, (Carter's being but five miles West of Cumberland) it is one mile shorter; it requires less length of bridges and causeways: it is equally well provided with materials, and it seems to be susceptible of nearly the same graduation.

The development of these facts may seem somewhat at variance with the existence of those advantages I have ascribed to the Springfield route; but, if what I have said be analyzed, it will appear that the advantages attributed to the Springfield route, were, 1st, that Wills' mountain is less formidable on it than on the road to Cumberland; and, next, that Spring Gap mountain, crossed by the Cumberland route, is entirely avoided by the Springfield route. Equivalent, however, to the first advantage, is this, that the road to Cumberland from Carter's is already made; and to counterbalance the second is opposed the disadvantage of a circuitous route, whereby the distance is increased beyond that from Cumberland.

I shall therefore assume the Cumberland route as that entitled to the preference.

From Sherrard's Store to the valley of the Shenandoah.

A more general description of this section of country will enable us to present a view of the comparative merits of the Gerrardstown, Gaudaloupe, and Winchester routes: for although we still have in front of us several continuous ridges, they are but of that inferior grade of which mention was scarcely made, while speaking of the *Martinsburg route*. I then took occasion to state some striking differences in the features of that route from either of those from Sherrard's Store; and in particular I remarked that Sleepy Creek Mountain and Third Hill, each a high and steep mountain on that route, did not stretch far enough South to interfere with any route from the Bloomery Gap. The Barrier Mountain was likewise spoken of as more formidable on the Martinsburg route than on any other; still *formi-*

dable on a route from Sherrard's Store to Gerrardstown; and completely broken on the routes to Guadaloupe or Winchester. Herein then the two last mentioned routes possess a decided advantage over that to Gerrardstown, but still more is their superiority evinced, when we find, as there is, a *general depression* of all the ridges in the direction of either Guadaloupe or Winchester. This is apparent at a single glance, particularly in the direction of the Guadaloupe route, where the depressions seem greatest; although the ridges are so nearly uniform in character, South of their intersection by the Gerrardstown route, that I do not think there would be any natural difference in the expense of obtaining the same graduation for the Winchester as for the Guadaloupe route.

The following table will exhibit the length and graduation of the section between the Great Cacapehon Mountain and the valley of the Shenandoah, by the present roads to either Gerrardstown, Guadaloupe, or Winchester.

Distance by existing Roads from Sherrard's Store.	GRADUATION.							Actual distance measured in a straight course.
	1° and under 1°	1° under 2°	2° under 3°	3° under 4°	4° under 5°	5° under 6°	6° under 7°	
18 miles to Gerrardstown,	2½ m	5¾	3¾		3	3½		15½ miles
16 do Guadaloupe,	2½	8	2	1	1½	1		14 do
19 do Winchester,	4¾	9¼	2¼	2⅜			⅛	17 do

But the face of the country is opposed to the location of a road to either place in a direct line, and more so upon the Gerrardstown route than on the others, for reasons already given, (the character of the ridges in that direction, and more especially that of the Barrier Mountain); so, while I think an easy graduation may be obtained on the Guadaloupe and Winchester routes by diminishing the distance, I do not think the Gerrardstown route admits *as* easy a graduation without augmenting its present length.

Their respective attributes are exhibited approximately by the table below:

Probable length of either section from Sherrard's Store.	GRADUATION.					Length of Bridges.	Length of Causeways
	1° & under 1°	1° & under 2°	2° & under 3°	3° & under 4°	4°		
18 miles to Gerrardstown,	2½	5¾	3¾		6½	70 yds.	130 yds.
15 do. Guadaloupe,	3	7	2¾	2¾		130 do.	105 do.
18 do. Winchester,	3¾	9¼	2¼	2¾		135 do.	155 do.

The difference in the graduation of the Guadaloupe and Winchester routes being proportioned to the proximity of either place to the Barrier Mountain.

As it regards the nature and quantity of materials, and the soil, these three sections are much on an equality.

Graduation. The two last routes about equal in this respect, and each superior to the 1st route.

Distance. Georgetown being the ultimate destination of the road, the relative lengths of the routes by either Gerrard's Town, Guadaloupe, or Winchester, will depend upon their distances from that point as well as from the Bloomery; but as there is yet another route to *Winchester* before we proceed to consider the sections *East* of either place, it may be better to endeavor to determine the best route to Winchester.

Fourth Route.

It has been shown that a route from *Carter's* to Winchester, after passing the West South Branch Mountain beyond the Town of Springfield, deflects materially from its former direction in order to arrive at the Bloomery Gap without encountering the Spring Gap Mountain; and we have seen that, in consequence, the increased distance was such as to render it apparently preferable to encounter the Spring Gap Mountain by the Old Town route.

This route contemplates a more direct course from Springfield to Winchester, than that by the Bloomery Gap, and our purpose shall be to discover if the face of the country will admit this advantage, without opposing obstacles to counterbalance it.

1st, By crossing the East South Branch at *Vance's* Gap, nearly opposite to Springfield, we find its summit less elevated than heretofore, but its Western slope being more precipitous than elsewhere, it possesses no material advantage at this point over either route to the Bloomery, neither does it on its Eastern side: for it has been usual, as here, to find the descent to the Little Capon River, in general very gradual. But, after having crossed the Little Capon River, *three* ridges intervene between it and Heiskill's; they are known as *Mouser's Ridge, North River Hill, and North River Mountain;* but a different nomenclature may promote perspicuity and render comparison easier, as in fact Mouser's Ridge is but a reappearance of Spring Gap Mountain; North River Hill a continuance of Sidling Mountain; and North River Mountain, the same Conolloway we find it every where.

The two first are crossed by the present road and by a gap in the third; the Conolloway is passed under the same circumstances as on the route to the Bloomery; but we do not, as at the Bloomery, find the Great Cacapehon next, and that severed to its base: for *Grape* Ridge intervenes, and we must *pass over* the Great Cacapehon Mountain.

Grape Ridge, it is true, is not considerable, nor are the difficulties presented here by the Great Cacapehon comparable to what they have been described to be on the Martinsburg route; but as to pass them and Sidling Mountain, we travelled 2¼ miles on a slope of 5°

and 6° (admitting that we can entirely avoid *Spring Gap Mountain* on this route, which I will presently shew,) the question recurs. do they not together constitute a greater difficulty on this route, than Spring Gap Mountain does on the route from Old Town? A reference to what has been said of Spring Gap Mountain will plainly shew that they do, and as one of the chief objections to a route from Old Town is the necessity of passing over Spring Gap Mountain, so may that objection be said to be common to this route.

Spring Gap Mountain itself may be avoided, by leaving the course of the present road and pursuing that of a small stream, which, rising at the Western foot of Sidling Mountain, empties into the Little Capon. The course by the valley in which that stream flows, would be equally, or nearly as direct as the present road, but as *it* is circuitous, we only avoid the Spring Gap Mountain, as on the route from Springfield to the Bloomery, at the expense of directness.

Returning, however, to the Great Cacapehon Mountain, we may consider its Eastern base as on the same parallel with Sherrard's Store, and from what has been said we may conclude, that, so far, the face of the country opposes, in the direction of this route, as many or more obstacles than on either route to the Bloomery.

From the Cacapehon Mountain to Winchester, the present road crosses all the ridges intersected by a route from the Bloomery; they may generally be said to be more elevated, especially the *North* Mountain, which is a reappearance of Sleepy Creek Mountain; but as it is completely broken where the road passes it, and as the other ridges present depressions, no particular obstacle can be affixed to this section, which does not belong to that from the Bloomery.

The *superiority* of this route, then, if it possesses any, will depend upon its greater directness, and that we may ascertain, approximately, its probable length, I proceed to a statement of the length and graduation of the present road.

Length of the present road from Springfield.	GRADUATION.						Length of Bridges.	Length of Causeways.
	1 & under 1°	1° & under 2°	2° & under 3°	3° & under 4°	5° & under 6	18° & under 20°		
13¾ miles to Heiskill's,	2¼	6	¾		4½	¼	275	40

Supposing that we can avoid Spring Gap Mountain by the valley alluded to, 2½ miles, now at a slope of 5° and 6°, may be reduced to a slope of 2° and less than 3°; and then, as the most favorable view, I think the trace of this section of the road may be so modified, that, without increasing the distance, it would be susceptible of this graduation: 2 miles at a slope of 1° and under; 5 miles at 1° and under 2°; 3 miles at 2° and under 3°; 3¾ miles at 4°; making the probable distance from Springfield to Hieskill's Tavern 13¾ miles.

From Hieskell's to Winchester.

Length of the present road from Hieskell's.	GRADUATION.						Length of Bridges.	Length of Causeway.
	1° & under 1°	1° 2°	2° 3°	3° 4°	4° 5°	5° 6°		
26 miles to Winchester,	4 6/8	9	1 2/8	5 1/4		5 2/8	130	540

The trace of this part of the road may be so modified as to diminish the distance, and reduce the graduation; frequently it is excessively crooked, and without apparent reason. It would perhaps admit this graduation: 3 miles at a slope of 1° and under 1°; 9 miles at 1° and under 2°; 2 miles at 2° and under 3°; 5 miles at 3° and under 4°; 6 miles at 4°: making the probable distance from Hieskell's to Winchester 25 miles, or that from Springfield to Winchester 38¾ miles.

These are the summary results in relation to the routes to *Winchester*, from Carter's by *Hieskell's*, and from Cumberland by *Sherrard's*.

Probable distance to Winchester.	GRADUATION.					Bridges.	Causeways.
	1° & under 1°	1° 2°	2° 3°	3° 4°	4°		
56 miles from Carter's by *Hieskill's*	7¼	19½	11	8½	9¾	755 yards.	1380 yards.
51¾ from Cumberland by *Sherrard's*. 5 miles from Carter's to Cumberland.	8¾	24½	8¾	2¾	7	555	444
56¾ miles from Carter's by Cumberland.							

From this Table we draw the following conclusions, with regard to the two sections between Winchester and the National Road: that the one by Sherrard's admits an easier graduation, and requires less length of Bridges and Causeways, while it is three-fourths of a mile longer than that by Hieskell's; but, estimating distance by the time that would take to travel either, I incline to the opinion that, in consequence of the difference in graduation, the one by Sherrard's would be equally direct. But admitting it to be somewhat longer, as five miles of the road are already made, the difference in the expense would be so much in its favor, that I shall now assume it (as I believe it would be found in the event of surveys of both routes) preferable to continue the National Road from Cumberland by the Bloomery, than from Carter's by Hieskill's.

To facilitate a comparison between the Martinsburg, Gerrardstown, Guadaloupe, and Winchester routes, the summary results in relation to that section of either, included between each and the town of Cumberland, are now presented in one table.

Probable distance from Cumberland.	GRADUATION.					Bridges.	Causeways.
	1° & under 1°	1° 2°	2° 3°	3° 4°	4°		
	Miles.						
59 miles to Martinsburg.		17½	10½	11	20	721 yards.	608 yards.
51¾ Gerrardstown.	7½	21	9¾		13½	490	415
48¾ Guadaloupe.	8	22½	8¾	2¾	7	550	390
51¾ Winchester.	8¾	24½	8¾	2¾	7	555	440

Materials.—In respect to the nature and quantity of materials, all the routes may be considered on an equality.

Soil.—The soil along the Martinsburg route is less susceptible of cultivation than on either of the other routes; the Gerrardstown, Guadaloupe, and Winchester routes are about on an equality.

Bridges and Causeways.—The Martinsburg route will require most bridging and causewaying; the other routes so nearly the same, that, in this respect, they may be considered on an equality.

Graduation.—It will be obtained with far less expense for the Winchester, Guadaloupe, and Gerrardstown routes, than for the Martinsburg route, and with less expense for the two first, than for the route by Gerrardstown.

Population.—The country bordering on either route being thinly settled, the only material difference, in this respect, will arise from the greater number of inhabitants in either Winchester, Guadaloupe, Gerrardstown, or Martinsburg. The first is far the most populous town, containing about 3,500 inhabitants; the last is next populous, containing about 1500 inhabitants; and neither Gerrardstown or Guadaloupe are sufficiently so to compete with either.

Distance.—The length of that part of the road traversing what may be considered the mountainous section between Cumberland and Georgetown, will be greatest by Martinsburg; least by Guadaloupe; and the same by either Winchester or Gerrardstown.

Now, so far, it is obvious that the Martinsburg route is inferior to all the other routes; that the Guadaloupe route promises to be the shortest, while it is equally practicable with the Winchester route; and more so than the Gerrardstown route; that the last is less practicable than the Winchester route; and that the Winchester route would more immediately accommodate the greatest number of People.

To arrive, however, at a conclusion, and to shew which will be the shortest and most practicable route to *Georgetown*, let us see under what circumstances either may be continued to that place.

From Martinsburg, the obstacles to a direct course to Georgetown are such, that I believe it never has been contemplated to encounter

them: for, the Blue Ridge, the Short *Hill*, and the sinuosities of the Potomac river, all conspire to oppose such a project. To avoid these difficulties, it has been proposed to carry the road from Martinsburg by either Shepherdstown and the mouth of the Monocacy to Georgetown, or by Harper's Ferry to Georgetown; but I conceived it unnecessary to canvass the merits of those routes, when, if it were possible to keep within the plane of the arc of the shortest distance from Martinsburg to Georgetown, yet would the probable distance from Cumberland to Georgetown, by Martinsburg, exceed that by any other route proposed.

For, by the Map which I have had compiled, it will be found that Martinsburg is about sixty miles from Georgetown, (and, in this particular, at least, I believe the map to be correct: for, the Potomac river is laid down from Colonel Abert's survey, and the position of Martinsburg, with respect to Harper's Ferry, Shepherdstown, Old Town, and Cumberland, agrees with that assigned it on every map in my possession,) which, added to 59¾ miles, the probable, I had almost said the *minimum*, length of a road from Martinsburg to Cumberland, will make the total length 119¾ miles. I, therefore, shall give the route by Martinsburg no farther consideration, than, at the proper time, to show, by comparison, *that it does not possess* greater *directness*, which, alone could compensate for its great inferiority in other respects.

WINCHESTER ROUTE.

To pass the Blue Ridge under the most favorable circumstances, is the first object of consideration by any route from the valley of the Shenandoah Eastward; for it, and beyond it, the face of the country is generally favorable to the trace of a road, at an easy graduation, in almost any direction.

We find the Blue Ridge much depressed below its ordinary height at *Snicker's* Gap, and that being situated nearly in the direct line between Winchester and Georgetown, it is there that the road from Winchester would cross it, and most advantageously. Whether, after having crossed the Blue Ridge, we should proceed direct to Georgetown, or carry the road to Leesburg, is a question of such interest to the inhabitants of that town, that, although I think it could with as much facility be prolonged in a straight line, I shall proceed to shew the length of a route from Winchester to Georgetown by either course.

From Winchester to Snicker's Ferry, in a direct line, is 14 miles 1,441 yards, and, as the valley of the Shenandoah will admit a straight road through it, or one nearly so, the probable distance from Winchester to the Shenandoah river will not exceed 15 miles.

The distance, by the present road, from the West bank of the Shenandoah river to Snickersville, is 3¾ miles, and, as of that but 1 mile now slopes at 4° and less than 5°, and the remainder at about 2°, the probable distance from the Shenandoah to Snickersville will not exceed that by the present road.

From Winchester, then, to Snickersville, at the Eastern base of the Blue Ridge, the probable distance may be assumed at 18¼ miles; which would admit a graduation for 15 miles, at a slope of about 1° and under 2°; 2¼ miles at about 2°; and 1 mile at 4°.

The distance from Snickersville to Leesburg, measured in a straight course, is 14⅛ miles, but, as the country in that direction is more hilly than nearer the Blue Ridge, I think a deviation from the straight course would be expedient, viz. to such an extent as would probably increase the distance from 14⅛ miles to about 15½ miles. We should, by so doing, obtain a graduation similar to that of the present road, by which it is 18 miles from Snickersville to Leesburg. The graduation of that road is at a slope of from 1° to 2°, with the exception of about three-quarters of a mile, crossing Cotocton Ridge, when it is at a slope of from 3° to 4°.

The probable distance, graduation, &c. of that part of the road between Winchester and Leesburg, will appear as in the following table:

Probable distance from Winchester.	GRADUATION.				Bridges.	Causeways.
	1° and under 2°	2° - 3°	3° - 4°	- - 4	Yards.	Yards.
18¼ to Snickersville - -	15	2¼	-	1	220	30
15½ to Leesburg - -	14¾	-	¾	-	50	600
33¾ to Leesburg - -	29¾	2¼	¾	1	270	630

From Leesburg to Georgetown the actual distance is about 32 miles, and the distance by the present road 33 miles; the probable distance would be about the same as that by the present road, and in no other particular could any material difference ensue from such deviations from the present location as may seem advisable.

The distance, graduation, and length of bridges and causeways, as they were estimated from the present road, are now presented as the probable features of that part of the road contemplated from Leesburg to Georgetown.

Probable distance from Leesburg.	GRADUATION.				Bridges.	Causeways.
	1° and under 1°	1° - 2°	2° - 3°	4	Yards.	Yards.
	miles.					
33 miles to Georgetown -	6	12	6	9	256	390

Direct Route from Snickersville to Georgetown.

Judging from the appearance of the country in the direction of this route, as seen from the roads to and from Leesburg, I think that a straight road from Snickersville to Georgetown, may as readily be made, as by the way of Leesburg, viz. with a proportionate increase of distance beyond the actual distance, a similar graduation would be obtained; and we should require about the same length of bridges and causeways: for we cross the same streams, and if a little nearer to their sources on this route than on that by Leesburg, yet would it be so nearly at the same places, that the difference in their width would not be material.

The actual distance from Snickersville to Georgetown being 44 miles, then would the probable distance, to attain the same graduation as on the Leesburg route, be about 46 miles.

That they may be compared, the summary results in relation to either are presented in the following table:

Probable distance from Winchester to Georgetown.	GRADUATION.					Bridges.	Causeways.
	1° - 1°	1° - 2°	2° - 3	3° - 4°	4°	Yards.	Yards.
By Leesburg, 66¾ miles to Georgetown.	6	41¾	8¼	9¾	1	526	1,020
By Snickersville direct, 64¼ miles to Georgetown.	6	39¼	8¼	9¾	1	526	1,020

In all other respects but those of *distance and population*, those two sections are on an equality; they traverse the fertile valley of the Shenandoah together, cross the Blue Ridge together, and never are so far separated that the materials, in quantity and quality, and the soil, are not similar by either route. The population bordering on either route, excluding that of Leesburg, is the same, and as Leesburg contains about 1500 inhabitants, the question is, Shall the route be lengthened 2½ miles for their accommodation? Leaving this for others to answer, I proceed to consider the Gerrardstown and Guadaloupe routes.

Guadaloupe and Gerrardstown routes.

The Blue Ridge, which was passed on the Winchester route, at Snicker's Gap, with so much ease and with so little deflection from the proper course, is, by either of these routes, a serious impediment to an equally direct approach to Georgetown. At the place where we

should wish to cross it, although a slight depression is there perceptible, we find it high and steep; and, if we turn from that to Keys' Gap, (the only depression between Snicker's and the Potomac, that deserves the appellation of a Gap,) and cross the Blue Ridge there, no sooner shall we have arrived at its Eastern base than we should again be necessitated to deviate materially from a direct course, or to encounter the Short Hill.

The Short Hill being, so far as elevation is concerned, as much a mountain as the Blue Ridge, having once passed that at Keys' Gap, I think it would be better to go around the Short Hill, at Hillsborough, than to cross it.

Upon this supposition I proceed to state the probable length and graduation of a road from either Guadaloupe or Gerrardstown; first to Charlestown: for Charlestown, the seat of justice in Jefferson County, and containing about 1500 inhabitants, lies so nearly in the direct line to Keys' Gap, that a road from either Guadaloupe or Gerrardstown, would doubtless go through it.

The distance to Charlestown, in a direct line from Guadaloupe, is about 15½ miles. The distance from Gerrardstown to Charlestown is about 13½ miles; the probable length of a road from either place to Charlestown would be about half a mile more than the actual distance, viz: 16 miles from Guadaloupe to Charlestown, and 14 miles from Gerrardstown to Charlestown. In graduation, and in every respect but in distance, these sections would be similar, and, as the probable distance from *Cumberland* to Guadaloupe is 2 miles less than to Gerrardstown, although the distance to Charlestown be 2 miles more from Guadaloupe than from Gerrardstown, yet would *Cumberland* be equally near by either route.

But as the section *West* of Guadaloupe unites more advantages than that West of Gerrardstown, and, as no difference exists *East* of either place to counterbalance those advantages, (for the two routes unite at Charlestown,) it follows that a route by Guadaloupe is superior to one by Gerrardstown: so, for the present, it is the former route alone that we shall keep in view.

From Charlestown it is 3¾ miles to the Shenandoah river, and thence to Hillsborough, by the most favorable estimate, is 6¾ miles, making the total distance from Guadaloupe to Hillsborough, 26½ miles.

From Hillsborough to Leesburg the country is broken, and more hilly than we heretofore have found it East of the Blue Ridge, but not so much so that a road may not be made without much deviation from a straight course. The present road is very crooked, it being 12½ miles by it from Hillsborough to Leesburg, although the actual distance is less than 10 miles. I think, however, as the most favorable estimate, 10 miles may be assumed as the probable distance, when, with the graduation of the present road, the total probable distance by, and graduation of, a road from Guadaloupe, by Keys' Gap and Hillsborough, to Leesburg, with the length of bridges, &c. would be as follows:

Probable distance from Guadaloupe.	GRADUATION.				Bridges.	Causeways.
	1° 2°	2° 3°	3° 4°	4°		
By Keys' Gap:						
26½ miles to Hillsboro' - -	23½	1¼	-	1¾		
10 miles to Leesburg - -	4	3	3			
36½ miles to Leesburg - -	27½	4¼	3	1¾	310	70

From Guadaloupe, by the Shannondale Springs, to Leesburg.

By this route it is proposed to cross the Blue Ridge where I observed we should wish to cross it, were it not for the elevation of the Blue Ridge at that point; and it remains to be shown, if that constitute so great an obstacle as to render it more expedient, to prolong the road by Keys' Gap.

The direction of this route would be such as to leave Charlestown about 3 miles to the North, and crossing the Shenandoah river at the Shannondale Springs, it would unite with the route by Charlestown at Hillsboro'.

The actual distance from Guadaloupe to the Shannondale Springs, is between 17 and 18 miles, and a road may be made that far at a slope of from 1° to 2° in about 18 miles; but thence to Hillsboro' it is impossible to say, so nearly as could be desired, without an actual survey, what would be the distance by a properly graduated road.

I know that, from the Shannondale Springs, the distance to Hillsboro', in a straight line, is about 4 miles, and I am confident, from the height of the Blue Ridge in that direction, that a road could not be graduated to a slope of 4° in less than 5½ miles; I think it more probable that the distance would be nearer 6 miles; but, as the most favorable estimate, I shall assume the probable distance from Shannondale Springs to Hillsborough, at 5½ miles, with a slope for 3 miles at 4°, and 2½ miles at a slope of 2° and less than 3°.

If this estimate approximate near the truth, there will be a saving, in distance, of three miles, by crossing the Blue Ridge at the Shannondale Springs rather than at Keys' Gap; or, if Charlestown be made a point, (which would increase the distance 1½ miles beyond what it would be by going direct to the Shannondale Springs,) there would be a saving in distance of 1½ miles.

The length of bridges, the soil, &c. would be about the same on either route, from Guadaloupe to Leesburg; to which place, from Hillsborough, and from which place to Georgetown, having already been described, I have but to add, in relation to a route by the Shannondale Springs, that the distance, by a direct course, from *Gerrardstown* to that place, is but *one* mile less than from Guadaloupe; and that, as where it was *two* miles on the route to *Keys' Gap*, the route from

Guadaloupe was deemed preferable, so is it now by the *Shannondale* Springs obviously preferable.

Harper's Ferry Route.

One other mode of passing the Blue Ridge and the Short Hill, has been suggested ; it is by making Harper's Ferry a point in the proposed road and going around them, where they are broken by the Potomac just below that place. In this event, we should continue the road from *Gerrardstown*, in preference to Guadaloupe, because of the greater directness of a route by Mill's Gap, from the *Bloomery* to Harper's Ferry.

The distance from Gerrardstown, in a straight course, to Harper's Ferry, is between nineteen and twenty miles, and I suppose in twenty miles a road may be made at the usual slope I have assumed in crossing the valley of the Shenandoah ; excepting about two miles as we approach Harper's Ferry, in which, it being hilly, the slope of the road would be increased to about 3°. We should on this route leave Charlestown about three and a half miles to the Southward.

Crossing the Shenandoah river near its mouth, we find no difficulty in passing the Blue Ridge, as between it and the Potomac there is sufficient space for a road, but that the expense of passing the Blue Ridge and Short Hill, by this route, may be contrasted with that by either of the other routes, I shall enumerate the items involving expense between Harper's Ferry and Pitcher's mill, about four miles below.

For the first one and a half miles, around the Blue Ridge, a causeway, three or four feet high, will be required to fortify the road against inundation, to which, otherwise, it would be subjected during the freshets of the Potomac ; to do which, however, materials in abundance are at hand : And in the next — and a half miles, in consequence of different high bluffs of the Short Hill, which jut into the river and rise precipitously above it, a wall for about half a mile in extent, and twelve or fifteen feet high would be requisite : for the remaining two miles there would be no particular difficulty, and with the causeway and wall specified, I doubt not the Blue Ridge and Short Hill may be passed in four miles, at a slope of from 1° to 2°.

After arriving at Pitcher's mill, two routes are proposed for the continuance of the road to Georgetown ; one by Leesburg. and the other as direct as the sinuosities of the Potomac would admit. Neither could differ much in length, and as the first is directed through a populous town, although perhaps about a mile the longer, I reconnoitered it.

The face of the country between Pitcher's mill and Leesburg is hilly, but it will admit, with scarcely any deviation from a direct course, a road at the following graduation : six miles at a slope of 1° and under 2° ; four miles at 2° and under 3° ; three miles at 3° and under 4° ; making the probable distance between those places thirteen miles, the actual distance being but little less.

The length and graduation of that section of a road from Gerrardstown to Leesburg by Harper's Ferry, with the length of bridges and causeways are now presented in a table.

Probable distance from Gerrardstown.	GRADUATION.				Length of Bridges.	Length of Causeways.
	1° - 2°	2° - 3°	3° - 4°	4		
20 miles to Harper's Ferry.	18	2				
17 " " Leesburg.	10	4	3			
37 " " Leesburg.	28	6	3		576 yds.	2m. 255 yds

Having now described the particular *sections* of each route, let us see what are the general characters of the different routes that may compete for the preference in the event of continuing the national road to Georgetown, assuming that section from Cumberland to the Bloomery preferable to those from Carter's by either the Bloomery or Hieskill's.

To render a comparison more easy, reference may be had to the summary of results contained in the annexed table.

SUMMARY OF RESULTS.

	Direction of the Routes from Cumberland to Georgetown.	Quality of soils traversed by the routes; general growth of timber; agricultural products; materials.	Total length of Bridges. M. Yards.	Total length of Causeway. M. Yards.	GRADUATION. 1° & under 1° miles.	1° 2° miles.	2° 3° miles.	3° 4° miles.	4° miles.	Population of the towns on each route.		Probable distance from Cumberland to Georgetown, miles.
1st.	By Oldtown, the Bloomery Gap, Winchester, and *Snickers' Gap* -	From Georgetown to Leesburg the soil is poor, sand predominates; growth, small oak trees and pine; materials, granite and red sand stone.	0 1,081	0 1,460	14¾	63¾	17	12½	8	Winchester	3,500	116
2d.	The same as the first to Snickers' Gap, thence by Leesburg - -	Thence, to the Blue Ridge, the soil is more fertile, clay predominates; materials, sand stone and quartz rocks; agricultural products, wheat, rye, and oats.	0 1,081	0 1,460	14¾	65¼	17	12½	8	Winchester Leesburg Total	3,500 1,500 5,000	118½
3d.	By *Guadaloupe*, Charlestown, Keys' Gap, and Leesburg - -	The valley of the Shenandoah is very fertile; soil, limestone clay; materials, limestone; growth, white oak and hickory; agricultural products, wheat principally.	0 1,116	0 850	14	61¾	19	14¾	8¾	Charlestown Hillsbo' & Leesb. Total	1,500 1,700 3,200	118¾
4th.	The same as the third, but crossing the Blue Ridge at the Shannondale Springs.	From the valley of the Shenandoah to Cumberland, soil, rich in the bottom lands and clayey, sterile on the ridges and sandy; growth, white and black oaks, maple, and hickory; materials, variable, but sand stone principally, and some limestone	0 1,116	0 850	14	57¾	20¼	14¾	10	Charlestown Hillsborough Leesburg Total	1,500 200 1,500 3,200	116¾
5th.	By Guadaloupe, and *thence direct* to Leesburg, by the Shannondale Springs -	The general disposition of materials from Georgetown to Cumberland, is about in this proportion: For 3-8 of the dist. common white and grey sand stone. For 2-8 do. limestone. For 1-8 do. granite rocks.	0 1,116	0 850	14	56¼	20¼	14¾	10	Hillsborough Leesburg Total	200 1,500 1,700	115¾
6th.	By *Gerrardstown*, Harper's Ferry, and Leesburg -	For 1-8 do. slaty sand stone & sand stone slate. For 1-8 do. red sand stone, argillaceous slate, serpentine, hornstone, quartz rocks, and chlorite slate.	0 1,066	2 670	13½	61	21¾	12	13½	Harper's Ferry Leesburg Total	2,500 1,500 4,000	121¾

Note. For the comparative merit of the route by Martinsburg, see page 25.

From the foregoing table it appears, that, with respect to *materials*, the *soil*, and the *length of bridges*, all the routes are so nearly on an equality that they may be considered similar; in other respects they differ thus:

CAUSEWAYS. The Guadaloupe routes will require the least length of causeways; the Gerrard's Town route the most.

GRADUATION. It will be most expensive on the Gerrard's Town route; least so on the Winchester routes; and more expensive on those routes crossing the Blue Ridge at the Shannondale Springs, than on that crossing at Keys' Gap.

POPULATION. The Winchester and Gerrard's Town routes would accommodate the greatest number of inhabitants; the Guadaloupe routes the least.

DISTANCE. The Gerrard's Town route is the longest; those routes by Guadaloupe *direct* to the *Shannondale Springs*, and by *Snicker's Gap direct to Georgetown*, are the shortest, the difference being 1¾ miles in favor of the former; but with respect to *time*, in consequence of the much greater facility with which the Blue Ridge would be passed at Snicker's Gap, I have no doubt the Winchester route would eventually prove as direct as any route by the Shannondale Springs. The length of those routes by Snicker's or Keys' Gap, *through Leesburg*, would be about the same.

EXPENSE. The expense for materials for a durable and solid construction, and for bridging, will be alike on all the routes; for causeways, least on the Guadaloupe routes, and most expensive on the Gerrard's Town route.

The expense to obtain a proper graduation has already been adverted to.

Such are the general results afforded by the reconnoissance, from which it appears that only those routes by *Winchester* and Guadaloupe can compete for the preference: for that by Gerrard's Town and Harper's Ferry has developed no advantages to compensate for its greater length; on the contrary, it does not promise so favorable a graduation, and the construction of a road in that direction would doubtless be the most expensive.

As to military and political considerations, they can have, I should suppose, but little weight in this discussion: for where all the routes are so contiguous to each other, I know not which can have any material advantages not common to all, unless it be that affording *greatest directness*, opposing *fewest difficulties* to its construction, and *traversing the most populous* section.

Such advantages will be found *united only in the Winchester* routes, for they are more practicable than any except those by Keys' Gap; one of the Winchester routes is shorter than they, and both are equally practicable; in actual distance, the route *direct* from Snickersville to Georgetown is but 1¾ miles longer than that which crosses the Blue Ridge at the Shannondale Springs, and, in point of *time*, for the reasons previously given, it could be travelled equally soon, and is therefore equally direct.

The Winchester route, then, from Snickersville direct to Georgetown, is superior to a route from Guadaloupe, whether it cross the Blue Ridge at the Shannondale Springs, or at Keys' Gap: for in the one case it is more direct, and the other more practicable and as direct.

It would accommodate more immediately, from its passing through the most populous town between Cumberland and Georgetown, a greater number of persons than either of the Guadaloupe routes; and this circumstance, combined with the other advantages that it possesses, I think warrants the conclusion, that the best route for the continuance of the National Road to Georgetown will be that through Winchester; and, as I before remarked, if, after having passed the Blue Ridge at Snicker's Gap, the accommodation of the inhabitants of Leesburg be thought equivalent to an otherwise unnecessary increase of 2½ miles in the length of the road, it can as readily be prolonged through Leesburg to Georgetown as on a direct route from Snickersville.

All which is very respectfully submitted.

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